

REMARKS

Claims 1-7, 19 and 21 are pending in the present application. By this response, there are no changes to the claims. Reconsideration of the claims is respectfully requested.

I. Formal Drawings

The Office Action objects to the formal drawings filed on April 18, 2001 for containing new matter. This objection is respectfully traversed.

As to Figure 6B, the Office Action states:

The formal drawings contain Figure 6B which was not previously presented.

Applicants respectfully submit that the specification as originally filed provides adequate support for the inclusion of Figure 6B. The specification, on pages 11-12, clearly describes the elements of the flex circuit illustrated in Figure 6B. This description, along with the description of the flex circuit in Figure 6A and its corresponding description on page 11 provides ample support for the inclusion of Figure 6B. In fact, Figure 6A illustrates the flex circuit in practically an identical manner as shown in Figure 6B, but without the LED's 602 or the snap fits 603 and 604 so that the openings 605 may be clearly seen. Thus, Figure 6B does not include new matter and the objection to the drawings should be withdrawn.

II. 35 U.S.C. § 112, First Paragraph

The Office Action rejects claims 1-7, 19 and 21 under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. This rejection is respectfully traversed.

As to claims 1-7, 19 and 21, the Office Action states:

It is not clear what is meant by a "straight feed-through connector". It is not clear if the connector has connections other than connecting pins. It is not clear how the connector to be used in the method of claim 1 is to be structured. It is not clear how the limitations of claim 2-4 would be implemented.

Applicants respectfully submit that the term "straight feed-through connector" is known to those of ordinary skill in the art and straight feed-through connectors are generally known in the art. In fact, the present specification provides an example of a straight feed-through connector as the Molex interposer connector (see page 10, lines 26-27). It is not necessary for Applicants to define the term or the structure of a "straight feed-through connector" when the device is known to those of ordinary skill in the art.

Additionally, whether or not the straight feed-through connector has other connections other than connector pins is irrelevant to whether the term is definite. The invention recited in claim 1 recites a straight feed-through connector that has connecting pins. Whether or not it has other connections does not matter as long as the straight feed-through connector at least has connecting pins.

Furthermore, the specification clearly describes the use of connector pins to establish a connection with a flex circuit via openings in the flex circuit (see pages 11 and 12 of the present specification). Moreover, Figure 7 illustrates how a connector pin may be used to connect to a flex circuit using locking times.

Therefore, Applicants respectfully submit that the specification provides an adequate description of the subject matter of claims 1-7, 19 and 21 to enable one of ordinary skill in the art to make and/or use the present invention. Thus, the rejection of claims 1-7, 19 and 21 under 35 U.S.C. § 112, first paragraph, has been overcome.

III. 35 U.S.C. § 112, Second Paragraph

The Office Action rejects claims 1-7, 19 and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. This rejection is respectfully traversed.

Applicants respectfully submit that alleged indefinite elements recited in the claims have been addressed above. None of the features recited in the claims are indefinite. Furthermore, the Office Action fails to explicitly state which "elements" are indefinite or reasons why these elements are indefinite. Therefore, the rejection of claims 1-7, 19 and 21 under 35 U.S.C. § 112, second paragraph has been overcome.

IV. 35 U.S.C. § 102, Anticipation

The Office Action rejects claims 1-7, 19 and 21 under 35 U.S.C. § 102(b) as allegedly being anticipated by Applicants' Figure 4, Auble (U.S. Patent No. 2,023,947), Nelson (U.S. Patent No. 5,126,657), Cole et al (U.S. Patent No. 5,548,223), Self (U.S. Patent No. 5,859,538), Kudla et al (U.S. Patent No. 5,896,037) or Kanamori (U.S. Patent No. 6,124,716). This rejection is respectfully traversed.

As to independent claim 1, the Office Action states:

Element 403 of Applicants' Figure 4 is considered a straight feed-through connector. One end of element 404 appears to be connected to the conductors of element 403 and the other end of element 404 appears to be connected to an LED. Note in Auble that everything between the missing socket on element 40 and the tube 41 can be considered a straight feed-through connector. The displays 43 and 45 are connected to the straight feed-through connector via a flexible circuit. Note Figure 6B of Nelson, Figure 2 of Cole et al, Figure 3 of Self, Figure 3 of Kudla et al and Figure 1 of Kanamori.

A prior art reference anticipates the claimed invention under 35 U.S.C. § 102 only if every element of a claimed invention is identically shown in that single reference, arranged as they are in the claims. In re Bond, 910 F.2d 831, 832, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). All limitations of the claimed invention must be considered when determining patentability. In re Lowry, 32 F.3d 1579, 1582, 32 U.S.P.Q.2d 1031, 1034 (Fed. Cir. 1994). Anticipation focuses on whether a claim reads on the product or process a prior art reference discloses, not on what the reference broadly teaches. Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 218 U.S.P.Q. 781 (Fed. Cir. 1983). Applicants respectfully submit the Applicants' Figure 4, Figure 4 of Auble, Figure 6B of Nelson, Figure 2 of Cole et al, Figure 3 of Self, Figure 3 of Kudla et al and Figure 1 of

Kanamori do not identically show each and every feature arranged as they are in the present claims.

With regard to Applicants' Figure 4, element 403 is detailed as a flex circuit connecting components 401 and 402, with a separate branch 404 leading to the LED (see present specification page 10, lines 11-16). There is no teaching or suggestion in Applicants' specification stating that element 403 is a straight feed-through connector. For the benefit of the Examiner, Figure 5A of Applicants' specification details element 504 as a straight feed-through connector and element 503 being a flex circuit. Thus, a flex circuit is not the same as a straight feed-through connector. Figure 4 only teaches a flex circuit 403, there is no straight feed-through connector in Figure 4.

Furthermore, even if element 403 were considered to be a straight feed-through connector, which it is not, Figure 4 of Applicants' specification still does not anticipate the invention recited in claim 1. Figure 4 does not teach a flexible circuit attached at one end to connecting pins of a straight feed-through connector. To the contrary, if element 403 is considered a straight feed-through connector, then all that is taught in Figure 4 is a straight feed-through connector that is connected to contact points 405 and 406 and having an end connected to a LED. There would be no flexible circuit taught in Figure 4.

However, Figure 4 actually teaches a flexible circuit 403 connected to contact points 405 and 406 and a separate branch 404 to LEDs. There is no straight feed-through connector taught in Figure 4 and thus, there is no teaching in Figure 4 to connect the flexible circuit 403 at one end to connector pins of a straight feed-through connector. Thus, Figure 4 does not anticipate the features of claim 1.

Auble teaches an apparatus for analyzing operating conditions in electrical circuits associated with thermionic tubes and is particularly applicable for testing household radio sets and for laboratory experiments thereon. The test set of Auble has principle parts comprised of the unit proper 10, a plug 11 and a cable or cord connection 12 between the two (see column 1, lines 46-48).

Auble does not teach a straight feed-through connector that has connecting pins and which connects electronic components, as recited in independent claim 1. Though the cord or cable 12 does have prongs, the prongs are arranged to be inserted in one of a standard type of thermionic tube sockets. The Office Action alleges that "everything"

between the empty socket on element 40 and the tube on element 41 is considered a straight feed-through connector. There is nothing in Auble to support this allegation. To the contrary, there is a plethora of circuitry and elements between the open socket and tube 41 including the unit proper 10, and the circuitry illustrated in Figure 1. Thus, there is no possible element that acts as a straight feed-through connector since any signal to or from the open socket must pass through the circuitry of the unit proper 10.

Furthermore, even with "everything" between the open socket and the tube, there is no teaching in Auble regarding a flexible circuit that is attached to the connecting pins of a straight feed-through connector or that also has an opposite end connected to a display. The Office Action alleges that Auble teaches this feature by stating that displays 43 and 45 are coupled to the unit proper 10 by a flexible circuit. Apparently, the Office Action is equating the wires that connect the milliammeter 43 and the voltmeter 45 to the unit 10 with a flexible circuit. However, a wire is not a flexible circuit. A flexible circuit is defined by the IPC as "a patterned arrangement of printed wiring utilizing a flexible base material with or without flexible coverlayers" (see "Flexible Thinking: Examining the Flexible Circuit Tapestry" Copy attached). A wire does not fall within this definition. Thus, contrary to the allegations made by the Office Action, Auble does not teach a flexible circuit as in claim 1. Therefore, there is no teaching or suggestion in Auble to attach one end of a flexible circuit to connecting pins of a straight feed-through connector that connects electronic components.

In addition, there is no suggestion in Auble to make the necessary modifications to arrive at Applicants' claimed invention. Auble does not teach or suggest a straight feed-through connector that connects electronic components and does not teach attaching one end of a flexible circuit to connecting pins of a straight feed-through connector. Thus, one of ordinary skill in the art would not be motivated to modify Auble to include these features without some other suggestion from another source. The only other source that provides such a suggestion is Applicants' own disclosure. Therefore, the only way in which Auble may be modified to arrive at Applicants' own disclosure is through the use of impermissible hindsight reconstruction using Applicants' own disclosure as a guide.

With regard to Figure 6B of Nelson, this figure merely illustrates a host board 130 with an integer unit extender board 150 attached via pins 172-184. An integer unit

computer chip 110 is provided on the integer unit extender board 150 and the pins 112-124 are provided for attachment of connectors 192 of test equipment 190. The connectors 192 are ribbon cables that allow simultaneous monitoring of multiple input and output signals. The connectors 192 are not flexible circuits. Thus, Nelson does not teach attaching one end of a flexible circuit to connecting pins of a straight feed-through connector or attaching an opposite end of the flexible circuit to a display, as recited in independent claim 1.

With regard to Figure 2 of Cole et al, this figure shows an adapter 10 intended for use in engineering for prototyping circuits in a test environment for trouble shooting devices already mounted on a circuit board. There is nothing in figure 2 that teaches a straight feed-through connector or a flexible circuit and the Office Action fails to identify where in Figure 2 these elements are allegedly taught. All that is taught in Figure 2 is to use an adapter 10 having electrical contacts 20 and conductive runs 14 to interface with an electronic device 30 via electrical contacts 16. Cole does not teach connecting electronic components by using a straight feed-through connector or attaching one end of a flexible circuit to connecting pins of the feed-through connector and attaching an opposite end of the flexible circuit to a display.

With regard to Figure 3 of Self, this figure shows a ball grid probe 120 comprised of a BGA socket 320 connected to the first side of an interconnect device 324 and a BGA header connected to the second side of the interconnect device 324. The interconnect device 324 comprises first and second conductive pad matrices 322 adapted to receive the BGA socket 320 and the BGA header 326 respectively. The BGA socket 320 and the BGA header 326 are preferably solder mounted to the opposite sides of a multilayered printed circuit board 323. Thus, Self does not teach connecting the electronic components by using a straight feed-through connector or attaching one end of a flexible circuit to the connecting pins of the feed-through connector and attaching an opposite end of the flexible circuit to a display.

With regard to Figure 3 of Kudla et al, this figure shows an interface adapter board 208 and test header board 252 that together form a "rigid-flex" assembly having a flat conductor cable or flexible printed circuitry 254 disposed between the two boards. The flexible printed circuitry 254 connection between the interface adapter board 208 and

test header board 252 is made by flexible printed circuitry in the form of multiple layers of unsupported polyimide having a plurality of conductive traces 250 formed between each layer. The conductive traces 250 connect to each of the solder pads 210 by means of soldering. Thus, Kudla does not teach connecting the electronic components by using a straight feed-through connector wherein the straight feed-through connector has connecting pins, attaching one end of a flexible circuit to the connecting pins of the feed-through connector and attaching an opposite end of the flexible circuit to a display.

With regard to Figure 1 of Kanamori, this figure depicts an electrical junction box 10 having an internally mounted printed circuit board 12 and a pair of ports 14, 16 adapted to receive a wiring harness connector 18 and a test unit connector 20 respectively in connections with the printed circuit board 12. The test unit connector 20 comprises a body 34 from which a plurality of terminal pins 36 extend, the pins being electrically connected to wires 38. However, a wire is not a flexible circuit as discussed above. Thus, contrary to the allegations made by the Office Action, Kanamori does not teach a flexible circuit as in claim 1. Therefore, there is no teaching or suggestion in Kanamori to attach one end of a flexible circuit to connecting pins of a straight feed-through connector that connects electronic components.

Thus Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori, do not teach each and every feature of claim 1 as is required under 35 U.S.C. § 102(b). At least by virtue of their dependency on independent claim 1, Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori do not teach each and every feature of dependent claims 2-7, 19 and 21. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-7, 19 and 21 under 35 U.S.C. § 102(b).

Furthermore, Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori do not teach, suggest, or give any incentive to make the needed changes to reach the presently claimed invention. In fact, Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori do not even recognize the need for connecting the electronic components by using a straight feed-through connector wherein the straight feed-through connector has connecting pins, attaching one end of a flexible circuit to the connecting pins of the feed-through connector and attaching an opposite end of the flexible circuit to a display. Absent the Examiner pointing out some teaching or incentive to implement Auble, Nelson, Cole et

al, Self, Kudla et al and Kanamori to connecting the electronic components by using a straight feed-through connector wherein the straight feed-through connector has connecting pins, attaching one end of a flexible circuit to the connecting pins of the feed-through connector and attaching an opposite end of the flexible circuit to a display, one of ordinary skill in the art would not be led to modify Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori to reach the present invention when the reference is examined as a whole. Absent some teaching, suggestion, or incentive to modify Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori in this manner, the presently claimed invention can be reached only through an improper use of hindsight using the Applicants' disclosure as a template to make the necessary changes to reach the claimed invention.

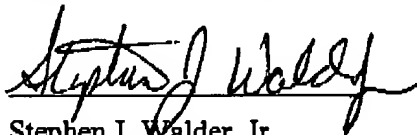
V. Conclusion

It is respectfully urged that the subject application is patentable over Auble, Nelson, Cole et al, Self, Kudla et al and Kanamori and is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

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Respectfully submitted,



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